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ABSTRACT

This document provides a 67-item observational instrument to be used for the evaluation and description of science teaching in the elementary school. No data regarding the instrument are provided. Sections of the instrument include: (1) use of intellectual development stages; (2) performance objectives; (3) lesson planning skills; (4) instruction sequencing; (5) question asking skills; (6) learning-teaching strategies; and (7) evaluation techniques. (SL)

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MICROTEACHING SKILLS IN SCIENCE CHECKLIST:

An Observational Instrument to be Used for Evaluation and Description of Science Teaching in the Elementary School

by

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SE 022 566

MICROTEACHING SKILLS IN SCIENCE CHECKLIST:

An Observational Instrument to be Used for

Evaluation and Description of Science Teaching in the Elementary School

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This instrument is to be used with one complete science lesson or a short science unit. Analysis must involve complete lesson plans and observation of lesson(s) or tapes of lesson(s). Each item is marked for those behaviors observed. A blank indicates not enough information was available for behaviors to be rated. Items are marked on a five point scale, A through E.

A - indicates not observed or not present, B - important elements missing or seen occasionally, C - some important elements present or sometimes, D - many elements present or often, E - all important elements present or always.

A. Evaluation of Use of Intellectual Development Stages

1. Group or class instruction activities show awareness of the stages of intellectual development of the children.

2. At some time the children's level of intellectual development was tested or sampled.

3. Lesson plan shows awareness of the types of intellectual development which students at this level can typically demonstrate.

_____TOTAL _____MEAN

B. Evaluation of Performance Objectives

4. Objectives describe the instructional goals of lesson (e.g. content, skill, attitude).

5. Objectives contain behavioral terms which can be measured.

6. Objectives contain an acceptance level statement which makes clear just how well the student must perform the described behavior.

_____TOTAL _____MEAN

C. Evaluation of Lesson Planning Skills
Lesson plans demonstrate the following characteristics:

7. Behavioral objectives are appropriate to the overall instructional purpose.

8. Both open and closed objectives are included.

9. Variety of levels are seen in objectives including cognitive, affective and inquiry skill areas.

10. Objectives identify action words which are related to the instructional activity.

11. Instructional activities are clearly stated which are appropriate and help children acquire the desired behaviors.

12. Objectives, pre-appraisal, learning activities and evaluation are related as a whole.

_____TOTAL _____MEAN

D. Evaluation of Instructional Sequencing

13. Prerequisite and related skills of instructional objectives are identified in unit description.

14. Skills and behaviors developed in lesson set are ordered according to complexity.

15. Lesson set involves assessing/diagnosing strategies which identify student performance which needs to be improved or extended.

_____TOTAL _____MEAN

E. Evaluation of Question Asking Skills (Teachers responses to students).

16. Percent and timing of knowledge level questions appropriate to lesson objections.

17. Percent and timing of convergent level questions appropriate to lesson objections.

18. Percent and timing of divergent level questions appropriate to lesson objections.

19. Percent and timing of evaluative level questions appropriate to lesson objections.

20. Students are given sufficient time to respond.

21. Questioning techniques are appropriately used with type of instruction students were involved in.

22. Student questions are redirected so that teacher is partially in background.

23. Recognizes child's attempt to respond to a question (positive reinforcement).

24. Causes child to re-examine incorrect or inappropriate responses so he feels no embarrassment.

25. Listens to the child's response and uses it in structuring further inquiry.

26. Responds to explanations with questions such as "how do you know" or "is it reasonable" rather than agree or disagree with the explanation.

27. Helps students to question explanations in terms of reasonableness of their own experience rather than accept the reasonableness from adult experience.

_____ TOTAL _____ MEAN

F. Evaluation of Teacher Behaviors

28. Demonstrations are conducted in front of class in an inquiry mode so that students are involved in using inquiry skills in investigating the world around them.

29. Lecture-discussion method is used appropriately with lesson objectives.

30. The class or group involvement includes providing an opportunity for them to express an opinion before doing an activity rather than let the activity be a demonstration monologue between the teacher and one or two students.

31. Rather than assume because the point is clear to one, it is clear to all, the instruction demonstrates that multiple experiences are needed for comprehension to occur.

32. Instruction provides for small team or group work.

33. Instruction allows for flexible seating, student movement, and maximum student use of materials and resources.

34. Teacher prepares equipment prior to use so it is issued with minimum confusion.

35. Teacher speaks in conversational tones.

36. Teacher eliminates undesirable behavior by involving student to a greater extent.

37. Teacher talks to the total group less than 30% of the time in any instructional incident or subset.

38. Teacher allows students freedom to discuss and interchange their ideas.

39. Instructions uses demonstrations, models, pictorial materials, and other multimedia where appropriate.

40. Instruction provides experiences in recording and interpreting data commensurate with arithmetical maturation when appropriate to objectives.

41. Teacher has worked through the experiences prior to presenting them to class.

42. Teacher encourages students to identify and state the problem to be investigated.

43. Teacher encourages students to initiate and implement their own means and methods for investigating the problem.

44. Teacher encourages students to analyze their own conclusions.

45. Reading assignments in science instruction are appropriate for stated objectives.

46. Activities performed by students serve as background experience for future instruction rather than verification of information presented.

47. Starting with various simple experiences, instruction should involve basic physics, biology, chemistry or general science concepts. Example: Not "how to feed a rabbit" but the process of metabolism.

48. Teacher encourages students to be active in science lessons stressing development of skills such as observing, measurement and predicting rather than content only.

49. Instruction involves both qualitative and descriptive aspects of science in lessons.

50. By increased permissiveness in student investigations, teaching and testing involves students in increasing "creativity" rather than achievement in factual information or in scientific principles alone.

51. Instruction does not provide students with detailed instructions for each step that must be taken in performing classroom activities.

_____TOTAL _____MEAN

G. Student Behaviors

52. The children are allowed to grope, ponder, or mess around rather than being directed immediately to a conclusion.

53. The children actively involved (either physically or mentally) rather than teachers performing.

54. Children gain basic experiences prior to being directed to analyze or understand vocabulary.

55. Students used observing and related skills (observing, spatial relations).

56. Students used communication skills (recording, drawing, charting, graphing, describing).

57. Students used metric measurements.

58. Students used Basic Process Skills during lesson (computing, comparing, classifying, measuring, time relations, constructing, predicting, inferring).

59. Students used integrated process skills during lesson. (Interpreting data, variables and controls, construct and use hypotheses, design and conduct experiments, evaluate information for accuracy).

60. Students asked questions (not simple requests for direction).

61. Students were responsive.

62. Students were enthusiastic.

63. Students proposed alternative ideas, interpretations and theories.

_____ TOTAL _____ MEAN

H. Evaluation of Evaluation Techniques

64. Teacher evaluates students on growth in many aspects of the learning experience, rather than simply on the basis of facts acquired.

65. Testing emphasizes learning and the use of ideas, rather than managerial functions, such as discipline and record keeping.

66. Evaluation appropriately measures objectives.

67. A variety of evaluation schemes are used including checklists, achievement tests and checklists of behaviors, skills, attitudes, achievement tests and others.

_____ TOTAL _____ MEAN

_____ GRAND TOTAL

_____ GRAND MEAN

MICROTEACHING SKILLS IN SCIENCE CHECKLIST

Dennis W. Sunal

Summary of Results

Five Point Scale was used (1--5) with minimum criteria set at _____.

Name _____

_____ A. Evaluation of use of Intellectual Development Stages

_____ B. Evaluation of Performance Objectives

_____ C. Evaluation of Lesson Planning Skills

_____ D. Evaluation of Instruction Sequencing

_____ E. Evaluation of Question Asking Skills

_____ F. Evaluation of Teacher Behaviors in Learning-Teaching Strategies

_____ G. Evaluation of Student Behaviors in Learning-Teaching Strategies

_____ H. Evaluation of Evaluation Techniques

_____ TOTAL

_____ Overall rating of Instructional Planning from above categories A - D, H

_____ Overall rating of teaching in lesson set from above categories E - G